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STUDIES ON THE VEGETATION OF SURGANA-HARSUL RANGES OF THE SAHYADRIES, NASIK DISTRICT, MAHARASHTRA

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ABSTRACT

This paper gives a preliminary account of the flora of the deciduous forests of Surgana, Peint, Bahre and Harsul ranges of the Sahyadries, Western ghats, Maharashtra State. The general composition of the vegetation which varies considerably from the valleys to the high hill tops has been briefly indicated. 403 species belonging to 83 families of Angiosperms and 5 species of Pteridophytes are enumerated. Families like Asteraceae, Fabaceae, Rubiaceae and Poaceae are well represented.

INTRODUCTION

The area under study lies between 20°0′-20°40′N and 73°15′-73°-45′E, in Nasik district, bounded by Gujarat State on north and west side, Dindori range, Nasik district on the east and Thana district on the south. So far this area is very little known botanically and the general data on the flora of this region are presented in this paper for the first time. The area includes hill tops, valleys and slopes adjoining Surgana, Peint, Sawarna, Harsul, Deodongra etc. Some of the forests including those of Surgana, which were once under private State, are now in east Nasik forest division.

TOPOGRAPHY AND GEOLOGY

The tract consists of water worn remains of a portion of Western edge of the table land of Deccan and in its feature resembles more the Konkan tract than the upghat areas. The whole tract consists of a net work of narrow ridges and deep cut ravines with numerous cross spurts and isolated hills of very rugged nature. There are three main rivers, namely the Nar, the Par and the Dawan. (Map). The average altitude of the tract is 600 m and the highest peak in this area is 848 m in Surgana range. The entire rock system belongs to what is known as the Deccan Trap.

The rock consists mainly of basalts, the most common of which is auguite basalt, which varies in colour and texture. The soil is lateretic and well drained, but not very rich except at the foot of the slopes where it is found in darker shade. Generally three varieties of soil are found: (1) deep rich soil with dark shade is found at the base of steep hills and along the sides of river, often interspersed with boulders; (2) murrumy soil with dark greyish colour is found on the slopes and is generally shallow except in depressions; (3) reddish soil is generally rare, on hill tops and places of higher elevations.

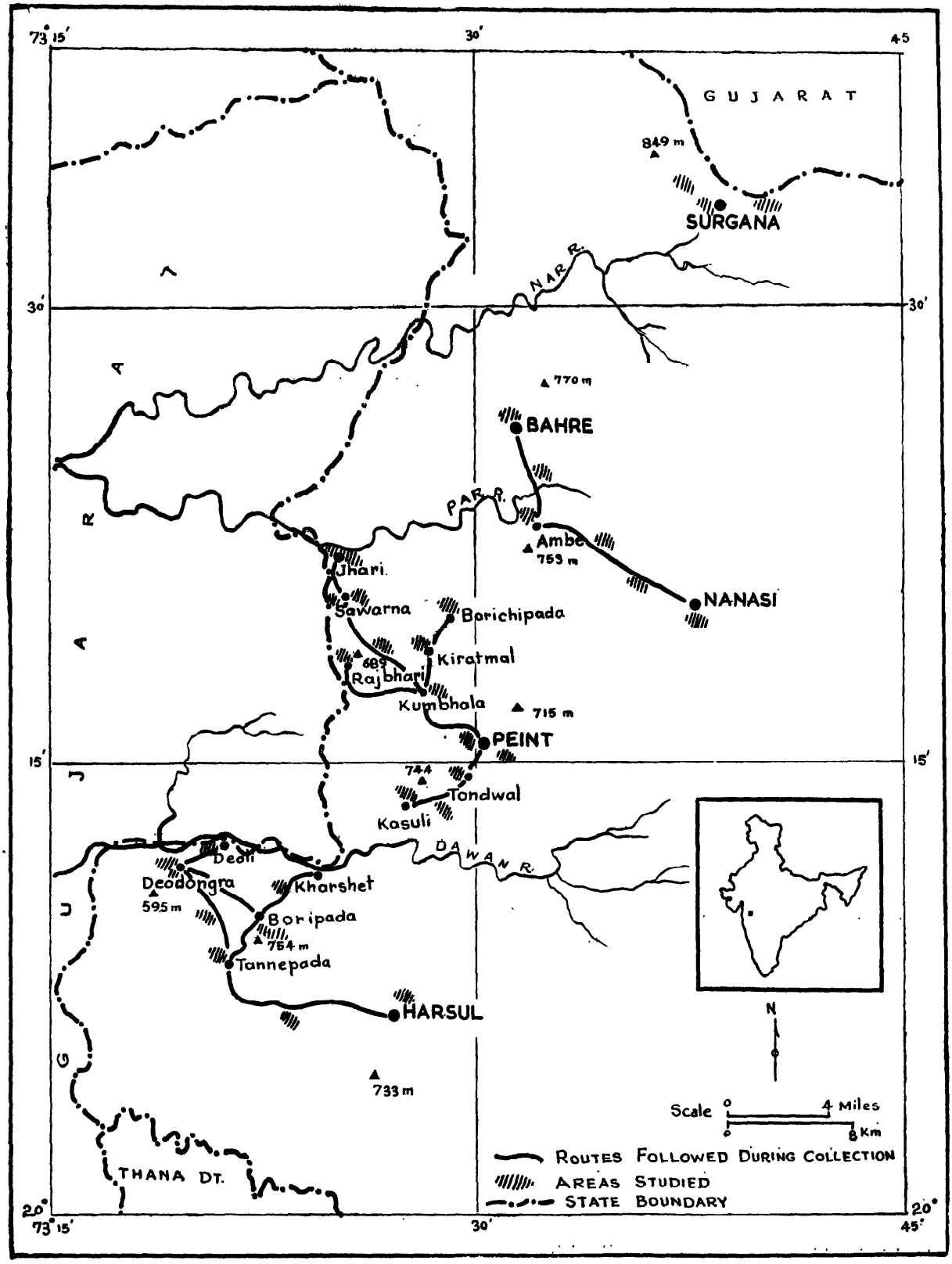
CLIMATE

The rainfall is governed by the south-west monsoon during June-September and the annual average ranges from 190 to 230 cm. The maximum temperature in summer ranges from 36°C to 40°C and the minimum in winter is 19°C. Dew fall, particularly after monsoon, is heavy in the valleys and low areas. In summer the scarcity of water is acutely felt.

VEGETATION

The vegetation of the region is mostly deciduous forest; very limited grassy areas are met with along some of the hill slopes.

The common trees of the deciduous forest are *Terminalia chebula, T. crenulata, T. bellirica, Tectona grandis, Adina cordifolia, Mitragyna parvifolia, Dalbergia lanceolaria, D. latifolia, Careya arborea, Schleichera oleosa, Gmelina arborea, Lagerstroemia parviflora, L. lanceolaria, Mallotus philippensis, Macranga peltata, Ficus microcarpa, F. virens, F. tsiela, Diospyros melanoxylon* etc. Mixed with these along hill slopes, forest edges and on open lands are shrubs like *Carissa congesta, Helicteres isora, Clerodendrum serratum, Flacourtia indica, Grewia abutilifolia, Embelia tsjeriam-cottam, Meyna laxiflora, Trema orientalis, Vitex negundo, Wrightia tinctoria, Xeromphis spinosa,* etc. and climbers like *Abrus precatorius, Ampleocissus latifolia, Cryptolepis buchanani, Dioscorea bulbifera, D. pentaphylla, Gloriosa superba, Jasminum malabaricum, Aspidopterys cordata, Melothria heterophylla, Combretum ovalifolium* etc. Parasitic species like *Cuscuta reflexa, Viscum articulatum, Dendrophthoe*



Map of Surgana-Harsul ranges of the Sahyadries, Nasik District, Maharashtra showing the routes followed and the areas studied.

falcata are very common. Epiphytic orchids such as *Aerides crispum, Eria dalzellii, Rhyncostylis retusa* are frequently collected. Aquatic species such as *Limnophila indica, Ceratophyllum demersum, Marsilea* sp. are common in ponds.

In valleys the vegetation is dense and the trees attain a good height. The commoner ones are *Adina cordifolia, Mitragyna parvifolia, Diospyros melanoxylon, Madhuca longifolia* var. *latifolia, Bridelia retusa, Ficus arnottiana, F. microcarpa, Schleichera oleosa, Terminalia bellirica* etc.

The herbaceous species during monsoon are luxuriant; the commoner species are *Centratherum phyllolaenum, Senecio grahami, Smithia setulosa, S. conferta, Indigofera linifolia, Desmodium rotundifolium, Crotalaria mysorensis, Impatiens balsmina, Biophytum candolleanum, Nicandra physaloides, Physalis minima, Torenia cordifolia, Trichodesma amplexicaule, Cardamine trichocarpa, Cleome chelidonii, Curculigo orchioides, Curcuma pseudomontana, Habenaria digitata, H. grandifloriformis, Iphigenia indica* etc. The common pteridophytes collected are *Adiantum philippense, Aleuritopteris albomarginata, Athyrium filix-foemina* etc.

On exposed undulating low hill tops, the vegetation is sparse with a few shrubs like *Gmelina arborea, Carissa congesta, Pavetta crassicalis, Spermadictyon suaveolens, Meyna laxiflora, Grewia abtilifolia, Leena edgeworthii, Acacia torta, Woodfordia fruticosa* etc. The common herbaceous are *Senecio grahami, Centratherum phyllolaenum, Osbeckia truncata, Peucedanum grande, Neanotis foetida, Canscora concanensis, Wedelia urticaefolia, Lobelia alsinoides, Anagallis arvensis, A. pumila, Swertia minor, Evolvulus alsinoides, Martynia annua* etc. along with members of Cyperaceae and Poaceae. The common Cyperaceae members are *Cyperus aristatus, C. cyperoides, C. globosus, C. iria, C. triceps, Eleocharis capitata, Fimbristylis dichotoma, F. tetragona, Rhinochospora wightiana, Scirpus squarrosus, Scleria hebecarpa* etc.

The grass areas whether along the clearance of forest area or on open hill slopes, comprise almost similar species like *Spodiopogon albidus, Ophiurus exaltatus, Capillipedium haegellii, Manisuris clarkei, Panicum montanum, Themeda quadrivalvis, Heteropogon contortus, Trilobachne cookei* etc. In certain areas particularly Sawarna, Jhari, Boripada, Deodongra the growth is luxuriant with some species exceeding 3 m in height.

In all 403 species representing 83 families of Angiosperms and 5 species of Pteridophytes have been enumerated. Every attempt has been made in bringing out the nomenclature upto date.

ENUMERATION

The collector for the field numbers where no name has been cited is Shri P. J. Cherian, the Senior author of the paper and the localities cited are marked in the Map.

RANUNCULACEAE

Clematis hedysarifolia DC.

In open fields, frequent. Deodongra-Deoli, 112668A.

DILLENIACEAE

Dillenia pentagyna Roxb.

On hill slopes, frequent. Frt. July. Tondwal, 111186; Kiratmal, 111253. *Vern.* Karmal.

MENISPERMACEAE

Cissampelos pareira Linn.

On hill slopes, common. Fl. Frt. September. Peint, 111332; Jhari, 111493; Harsul, 112626; Tondwal, 111157.

Cyclea burmannii (DC.) Hk. f. & Th.

On hill slopes, common. Fl. September. Sawarna, 111429; Deodongra, 112685.

Tinospora cordifolia (Willd.) Miers.

On hill slopes, rare. Deodongra, 112683. *Vern.* Gurvel.

PAPAVERACEAE

Argemone mexicana Linn.

In open fields, common. Fl. July. Peint, 111123.

BRASSICACEAE

Brassica nigra Koch.

Cultivated near villages. Kumbhala, 112612.

Cardamine trichocarpa Hoschst. ex Rich.

In open fields and on hill slopes, common. Fl. Frt. July. Tondwal, 111191.

CLEOMACEAE

Cleome chelidonii Linn. f.

In open fields and near the nalas, frequent. Fl. Frt. July. Pratapgadh forest, Surgana, *Rolla* 109379; Peint, 111120; Harsul, 109309; Sawarna, valley down Gujarat border, 111223.

C. viscosa Linn.

In open fields, common. Fl. Frt. September. Jhari, 111501; Sawarna, 111232.

CAPPARIDACEAE

Capparis zeylanica Linn.

On hill slopes, rare. Bahre-Nanasi, *Rolla* 109334.

FLACOURTIACEAE

Flacourtia indica (Burm. f.) Merr.

On hill slopes and hill tops, frequent. Fl. July. Tondwal, 111158.

Vern. Tambat.

CARYOPHYLLACEAE

Polycarpon prostratum (Forsk.) Asch. & Schw.

On rocky areas of the nalas, frequent. Frt. July. Kumbhala, 111251A; Pratapgadh forest, Surgana, *Rolla* 109378.

PORTULACEAE

Portulaca oleracea Linn.

In wet areas, common. Fl. July. Peint, 111124.

MALVACEAE

Abelmoschus manihot (Linn.) Medik.

On hill slopes, frequent. Fl. September. Sawarna, on way to Gujarat border, 111449.

Vern. Ran Benda.

Azanza lampas (Cav.) Alef.

On hill slopes, common. Fl. Frt. July-September. Deodongra, 112686; Sawarna, on way to Gujarat border, 111450; Peint, 111104.

Vern. Ran Bendhi.

Hibiscus furcatus Roxb.

On hill slopes, frequent. Fl. September. Sawarna, on way to Gujarat border, 111448.

Vern. Ambadi.

H. hirtus Linn.

On hill slopes, few. Fl. September. Kumbhala, 111600.

H. vitifolius Linn.

On hill slopes, few. Fl. September. Sawarna, on way to Gujarat border, 111448A.

Sida acuta Burm. f.

On top of hills and on hill slopes, common. Fl. September. Sawarna, on way to Gujarat border, 111446.

S. alba Linn.

On hill slopes, few. Fl. September. Deodongra-Tannepada, 112720.

S. rhombifolia Linn.

On top of hills and on hill slopes, frequent. Fl. September. Kumbhala, 111568.

S. veronicaefolia Lamk.

On hill slopes, frequent. Fl. September-October. Sawarna, on way to Gujarat border, 111458; Tannepada-Kharshet, 112790.

Thespesia populnea (Linn.) Soland. ex Corr.

On road-side. Fl. September. Peint, 112790.

Urena lobata Linn.

On hill slopes, frequent. Fl. September. Harsul, 112631; Kumbhala, 112605; Tannepada, 112781; Sawarna, on way to Gujarat border, 111459.

Vern. Zinga root.

BOMBACACEAE

Bombax ceiba Linn.

On hill slopes, frequent, Rajbhari, 111282.

STERCULIACEAE

Eriolaena quinquelocularis Wt.

On hill slopes, rare. Fl. July. Sawarna, valley down Gujarat border, 111201.

Vern. Varing.

Helicteres isora Linn.

On hill slopes, common. Fl. July-September. Jhari, 111490; Tannepada-Kharshet, 112785.

Sterculia urens Roxb.

On hill slopes, frequent. Frt. July. Peint-Tondwal, 111141.

Vern. Kaundal.

TILIACEAE

Corchorus aestuans Linn.

On hill slopes and on hill tops, common. Fl. Frt. September. Sawarna, 111407; Harsul-Tannepada, 112646.

C. capsularis Linn.

On hill slopes and on hill tops, frequent. Fl. Frt. September. Tannepada, 112784.

C. olitorius Linn.

On hill slopes and on hill tops, common. Fl. Frt. September. Tannepada, 112780.

C. trilocularis Linn.

On hill slopes and on hill tops, common. Fl. Frt. September. Sawarna, 111435 & 111411; Deodongra, 112664.

Erinocarpus nimmonii Grah.

On hill slopes, rare. Fl. September. Sawarna, 111406.

Vern. Moduvakh.

Grewia abutilifolia Vent. ex Juss.

On hill slopes and on hill tops, frequent. Frt. July-September. Sawarna-Kumbhala, 111543; Sawarna, 111420 & 111234; Peint, 111105.

G. glabra Blume

On hill slopes, few. Fl. September. Sawarna. 111430; Jhari, 111540.

G. tiliaefolia Vahl var. **leptopetala**

On hill slopes, few. Tondwal, 111187.

Vern. Dhamen.

Triumfetta annua Linn.

On hill slopes and on hill tops, common. Fl. Frt. September. Jhari, 111507.

T. rhomboidea Jacq.

On hill tops, common. Fl. Frt. September. Sawarna, 111387 & 111451; Kumbhala, 112602; Deodongra, 112687; Tannepada, 112766.

T. pilosa Roth

On hill tops, common. Fl. September. Sawarna, 111386.

LINACEAE

Linum mysurense Heyne ex Benth.

On hill tops and on hill slopes, common. Fl. September. Peint, 111318; Kumbhala, 111559; Tannepada-Kharshet, 112764.

MALPIGHIACEAE

Aspidopteris cordata A. Juss.

On hill slopes, frequent. Fl. September. Peint, 111328; Kumbhala, 111598; Tannepada-Kharshet, 112770.

Vern. Bokadvel.

OXALIDACEAE

Biophytum candolleanum Wt.

On hill slopes, frequent. Fl. September. Peint, 111340; Sawarna, 111434; Harsul, 112638.

BALSAMINACEAE

Impatiens balsamina Linn.

On hill tops and hill slopes, common. Fl. Frt. September. Sawarna, on way to Gujarat border, 111443.

I. kleinii Wt. & Arn.

On hill slopes, frequent. Fl. September. Peint, 111249; Kumbhala, 111577.

RUTACEAE

Aegle marmelos Corr.

On hill slopes, few. Frt. September. Harsul, 112636.

BURSERACEAE

Garuga pinnata Roxb.

On hill slopes, common. Frt. July. Peint, 111130.

MELIACEAE

Melia dubia Cav.

On hills slopes, rare. Frt. July. Peint, 111136.

CELASTRACEAE

Celastrus paniculata Willd.

On hill slopes and valleys, frequent. Fl. Frt. July-September. Harsul, 112639; Tondwal, 111151; Kiratmal, 111259.

Elaeodendron roxburghii Wt. & Arn.

On hill slopes, few. Fl. September. Kumbhala, 111584.

RHAMNACEAE

Zizyphus glaberrima Sant.

On hill slopes and valleys, common. Frt. September. Rajbhari, 111283.

VITACEAE

Ampelocissus latefolia (Roxb.) Planch.

On hill slopes and valleys, common. Fl. Frt. July-September. Harsul, 109312; Sawarna, valley down Gujarat border, 111218.

Cissus pallida (Wall. ex Wt. & Arn.) Planch.

On hill slopes, frequent. Frt. September. Jhari, 111497.

LEEACEAE

Leea edgeworthii Sant.

On hill slopes and hill tops, common. Fl. Frt. July-September. Peint, 111116; Kumbhala, 111576; Harsul, 112622.

L. macrophylla Roxb.

On hill slopes, frequent. Fl. Frt. July-September. Sawarna, valley down Gujarat border, 111465; Peint, 111117.

SAPINDACEAE

Schleichera oleosa (Lour.) Oken.

On hill slopes and valleys, frequent. Rajbhari, 111292.

Vern. Kossimb.

ANACARDIACEAE

Anacardium occidentale Linn.

On hill tops near the village, cultivated. Fl. September. Sawarna. 112789.

FABACEAE

Abrus precatorius Linn.

On hill slopes, frequent. Fl. Frt. September. October. Deodongra, 112673; Tannepada-Kharshet, 112769.

Aeschynomene indica Linn.

In open fields, common. Fl. September. Peint, 111343; Jhari, 111531.

Alysicarpus bupleurifolius (Linn.) DC.

In open fields and hill tops, common. Fl. Frt. September. Peint, 111321; Tannepada-Kharshet, 112761.

A. vaginalis DC.

In open fields and hill tops, common. Fl. Frt. September. Sawarna, 111409; Sawarna, valley down Gujarat border, 111472; Jhari. 111528.

Atylosia platycarpa Benth.
On hill slopes, few. Fl. September. Peint, 111367.
Butea monosperma (Lamk.) O. Ktze.
On hill slopes, common. Peint-Tondwal, 111139.
B. superba Roxb.
In valleys and on slopes, frequent. Tondwal, 111173.
Vern. Pallasvel.
Clitoria biflora Dalz.
On hill slopes, few. Fl. Frt. September. Peint, 111316.
Crotalaria filipes Benth.
In open fields, few. Fl. September. Deodongra-Tannepada, 112742.
C. juncea Linn. f.
In open fields, common. Fl. September. Sawarna, 111405 & 111417; Deodongra, 112698.
C. mysorensis Roth
In open fields, frequent. Fl. September. Sawarna, 111418.
C. nana Burm.
In open fields, frequent. Fl. September. Kumbhala, 111596.
C. triquetra Dalz.
In open fields, few. Fl. September. Sawarna, 111382.
Dalbergia lanceolaria Linn.
In open fields, frequent. Frt. July. Peint, 111131.
D. latifolia Roxb.
On hill slopes, frequent. Tondwal, 111184; Sawarna-Kumbhala, 111550.
Desmodium cephalotes Wall.
On hill slopes, few. Fl. September. Harsul, 112629.
D. diffusum DC.
On hill slopes, few. Fl. September. Sawarna, 111403.
D. gangeticum DC.
On hill slopes, few. Fl. September. Harsul, 112627 A.
D. heterocarpon (Linn.) DC.
On hill slopes, few. Fl. September. Deodongra, 112677.
D. latifolium DC.
On hill slopes, rare. Fl. September. Sawarna, 111414; Harsul, 112627; Harsul-Tannepada, 112650.
D. laxiflorum DC.
On hill slopes, frequent. Fl. September. Peint, 111337; Sawarna, 111394; Kumbhala, 111575.
D. rotundifolium Baker
In open fields, common. Fl. Frt. September. Peint, 111310; Jhari, 111516; Harsul, 112633; Deodongra-Tannepada, 112717.
D. triflorum (Linn.) DC.
In open fields, common. Fl. September. Peint, 111325; Tannepada, 112760.
Dolichos falcatus Klein ex Willd.
On hill slopes, few. Fl. Frt. September. Kumbhala, 111589.
Geissaspis cristata Wt. & Arn.
In open fields, common. Fl. September. Peint, 111342; Kumbhala, 111564.
Indigofera astragalina DC.
In open fields and hill slopes, frequent. Fl. September. Peint, 111311; Sawarna, 111408; Boripada, 112649.
I. endecaphylla Jacq.
In open fields, few. Fl. September. Sawarna-Jhari, 111479.
I. glandulosa Willd.
In open fields, and hill slopes, frequent. Fl. September. Jhari, 111487; Boripada, 112653.
I. linifolia Retz.
In open fields, frequent. Fl. Frt. September. Kumbhala, 111588; Deodongra-Tannepada, 222732.
I. prostrata Willd.
In open fields, common. Fl. Frt. September. Peint, 111317; Boripada, 112707.
I. trita Linn. f.
In open fields, few. Fl. Frt. September. Jhari, 111481; Deodongra, 112676.
Mucuna pruriens DC.
On hill slopes, rare. Fl. September. Peint, 111348.
Phaseolus dalzellii Cooke
On hill slopes, common. Fl. Frt. September. Deodongra, 112671 & 112694.
P. khandalensis Sant.
On hill slopes, rare. Fl. Frt. September. Sawarna-Kumbhala, 111553.
Vern. Badmung.
P. radiatus Linn.
On hill slopes, frequent. Fl. Frt. September. Peint, 111336; Sawarna, 111399.
Pongamia pinnata (Linn.) Pierre.
On hill slopes, frequent. Frt. July-September. Jhari, 111498; Tondwal, 111155.
Rhynchosia minima DC.
On hill slopes, frequent. Fl. September. Deodongra-Tannepada, 112728.

Rhynchosia rothii Benth. ex Aitchison
On hill slopes, rare. Fl. September. Jhari, 111519; Harsul, 112621.
Sesbania bispinosa (Jacq.) Wt.
In open fields, frequent. Fl. September. Jhari, 111532.
S. sesban (Linn.) Merr.
In open fields, frequent. Fl. September. Sawarna, 111388.
Smithia conferta Sm.
In open fields, common. Fl. September. Peint. 111319; Jhari, 111522; Boripada, 112700.
Vern. Kowla.
S. salsuginea Hance.
In open fields, common. Fl. September. Peint, 111432 A.
S. setulosa Dalz.
In open fields, frequent. Fl. September. Kotambighat, Peint, 111364; Kambhala, 111592.
Teramnus labialis (Linn. f.) Spr.
On hill slopes, common. Fl. September. Kumbhala, 111579.
Vigna capensis Walp.
On hill slopes, frequent. Fl. Frt. September. Kotambighat, Peint, 111349.
Zornia gibbosa Span.
In open fields, common. Fl. September. Peint, 111324.

CAESALPINIACEAE

Bauhinia lawii Benth.
On hill slopes, frequent. Peint-Tondwal, 111146.
B. malabarica Roxb.
On hill slopes, frequent. Bahre-Nanasi. *Rolla* 109338.
B. racemosa Lamk.
On hill slopes, common. Frt. July. Nanasi-Ambe, *Rolla* 109364; Peint, 111114.
Cassia absus Linn.
In open fields and hill tops, frequent. Fl. September. Peint, 111314.
C. fistula Linn.
On hill slopes, frequent. Frt. September. Jhari, 111514; Sawarna, 111240.
C. mimosoides Linn.
In open fields and hill tops, frequent. Fl. September. Sawarna, 111381; Harsul-Tannepada, 112654.
C. pumila Lamk.
In open fields and hill tops, common. Fl. Frt. September. Peint, 111339; Deodongra-Tannepada. 112722.
C. obtusifolia Linn.
In open fields and hill tops, common. Fl. Frt. September. Peint-Kumbhala, 112615.
C. tora Linn.
In open fields and hill tops, common. Fl. Frt. September. Sawarna, 111424; Harsul, 112632.

MIMOSACEAE

Acacia pennata Willd.
On hill slopes, frequent. Fl. September. Deodongra-Tannepada, 112719.
Acacia polycantha Willd.
On hill slopes, common. Fl. July. Bahre-Nanasi. *Rolla* 109351; Nanasi-Ambe, *Rolla* 109362; Tondwal, 111188.
A. sinuta (Lour.) Merr.
On hill slopes, frequent. Fl. September. Peint, 111366.
A. torta (Roxb.) Craib.
On hill slopes, frequent. Fl. July-September. Peint, 111132; Kiratmal, 111256.
Albizia odoratissima Benth.
On hill slopes, frequent. Frt. July. Tondwal, 111175.
Mimosa pudica Linn.
In open fields, few. Fl. September. Sawarna, 111409.

COMBRETACEAE

Anogeissus latifolia Bedd.
On hill slopes, common. Sawarna, 111415 A.
Calycopteris floribunda Lamk.
On hill slopes, few. Harsul, 112637.
Combretum ovalifolium Roxb.
On hill slopes and valleys, frequent. Frt. July-September. Harsul, 109304; Sawarna, valley down Gujarat border, 111217.
Terminalia bellerica Roxb.
On hill slopes and valleys, frequent. Frt. July. Peint, 111129.
T. chebula Retz.
On hill slopes, frequent. Frt. July-September. Kumbhala, 111594; Peint-Tondwal, 111137.
T. crenulata Roth
On hill slopes, common. Frt. July. Nanasi-Ambe, *Rolla* 109360 & 109359; Bahre-Nanasi, *Rolla* 109335; Peint-Tondwal, 111145.

MYRTACEAE

Syzygium cumini (Linn.) Skeels.
On hill slopes, frequent. Frt. September. Rajbhari, 111295.

LECYTHIDACEAE

Careya arborea Roxb.

On hill slopes and valleys, frequent. Frt. July. Peint-Tondwal, 111140.

MELASTOMATACEAE

Osbeckia truncata Don.

In open fields, few. Fl. September. Kumbhala, 111580.

LYTHRACEAE

Ammannia multiflora Roxb.

In cultivated fields, few. Fl. September. Sawarna, 111401; Boripada, 112652.

Legerstroemia parviflora Roxb.

On hill slopes and open fields, common. Frt. July-September. Pratapgadh forest, Surgana, *Rolla* 109362. Harsul, 109310; Harsul-Tannepada, 112644.

Rotala aquatica Lour.

In rocky areas of the river, frequent. Fl. September. Sawarna, valley down Gujarat border, 111219.

Woodfordia fruticosa (Linn.) Kurz

On hill slopes, common. Fl. July. Tondwal, 111161.

ONAGRACEAE

Ludwigia perennis Linn.

In wet areas, few. Fl. September. Harsul-Tannepada, 112647.

SAMYDACEAE

Casearia graveolens Dalz.

On hill slopes, frequent. Frt. July-September. Pratapgadh forest, Surgana, *Rolla* 109377; Harsul, 109305; Bahre-Nanasi, *Rolla* 109346; Kiratmal, 111254.

CUCURBITACEAE

Bryonopsis laciniosa (Linn.) Naud.

On hill slopes and valleys, few. Fl. Frt. September. Jhari, 111500.

Vern. Dhamenvel.

Cucumis melo Linn. var. **agrestis** Naud.

On hill slopes and valleys, common. Fl. Frt. September. Sawarna, 111241; Sawarna, on way to Gujarat border, 111461.

Vern. Mekk.

C. sativa Linn.

Cultivated near the villages. Boripada, 112711.

Dicoelospermum ritchiei Clarke

On hill slopes, frequent. Fl. Frt. September. Kumbhala, 111578 & 111613.

Luffa acutangula Roxb.

On hill slopes and valleys, frequent. Fl. Frt. September. Jhari, 111505.

Vern. Randodka.

Melothria angulata Chakr.

On hill slopes and valleys, frequent. Fl. Frt. July. Sawarna, valley down Gujarat border, 111206.

Vern. Gomett.

Momordica dioica Roxb. ex Willd.

On hill slopes, frequent. Fl. September. Sawarna, 111244.

Vern. Kartoli.

Mukia maderaspatana (Linn.) M. Roem.

On hill slopes and valleys, common. Fl. Frt. September. Sawarna, on way to Gujarat border, 111460; Tannepada, 112757.

Vern. Mekh.

Solena heterophylla Lour.

On hill slopes, frequent. Fl. July. Bahre, *Rolla* 109341.

BEGONIACEAE

Begonia crenata Dryand.

On rocky crevices, few. Fl. September-October. Deodongra, 112684.

MOLLUGINACEAE

Glinus lotoides Linn.

In open fields, frequent. Fl. September. Kiratmal, 111251.

Mollugo pentaphylla Linn.

In open fields, common. Fl. September. Sawarna, valley down Gujarat border, 111216.

APIACEAE

Peucedanum grande Cl.

In open fields and hill slopes, common. Fl. Frt. September. Tondwal, 111200; Sawarna-Kumbhala, 111552; Rajbhari, 111290.

Vern. Baphli.

Pimpinella heyneana Wall.

On hill slopes, frequent. Fl. September. Sawarna, on way to Gujarat border, 111462.

Vern. Dongar jeera.

RUBIACEAE

Adina cordifolia (Roxb.) Hk. f.

On hill slopes and valleys, common. Fl. September. Kiratmal, 111255; Jhari, 111512.

Borreria articularis (Linn.) F. N. Will.

In open fields, frequent. Fl. September, Kumbhala, 111569.

Vern. Karda.

B. stricta (Linn. f.) K. Sch.

In open fields, common. Fl. September, Sawarna, on way to Gujarat border, 111440; Harsul-Tannepada, 112645.

Gardenia latifolia Ait.
On hill slopes, few. Frt. July Bahre-Nanasi, *Rolla* 109344.

Hymenodictyon obovatum Wall.
On hill slopes, few. Frt. July. Tondwal, 111180.

Meyna laxiflora Robyns.
On hill slopes and hill tops, frequent. Frt. July-September. Bahre-Nanasi, *Rolla* 109347; Tondwal, 111148; Rajbhari, 111291.

Mitragyna parvifolia (Roxb.) Korth.
On hill slopes, common. Fl. July. Harsul, 109302; Bahre-Nanasi, *Rolla* 109352; Peint, 111128.

Neanotis foetida (Hk. f.) W. H. Lewis
In open fields, common. Fl. September. Peint, 111313; Rajbhari, 111297.
Vern. Gundun.

N. lancifolia (Hk. f.) W. H. Lewis
In open fields, frequent. Fl. September. Sawarna, on way to Gujarat border, 111463.

Oldenlandia corymbosa Linn.
In cultivated fields, few. Fl. September. Harsul, 112630; Deodongra-Tannepada, 112733.

Pavetta crassicaulis Berm.
On hill slopes and hill tops, common. Fl. Frt. July. Pratapgadh-forest, Surgana, *Rolla* 109381; Peint, 111107.

Spermadictyon suaveolens Roxb.
On hill slopes, few. Fl. September. Jhari, 111484.
Vern. Ragathrohida.

Xeromphis spinosa (Thunb.) Keay.
On hill tops and hill slopes, common. Fl. Frt. July. Tondwal, 111147.

ASTERACEAE

Acanthospermum hispidum DC.
In open fields, common. Fl. September. Sawarna, on way to Gujarat border, 111442.

Ageratum conyzoides Linn.
In open fields, common. Fl. September. Sawarna, on way to Gujarat border, 111455.

Bidens biternata (Lour.) Merr. & Sherff.
In open fields, common. Fl. Frt. September-October. Sawarna, 111385; Kumbhala-Peint, 112617; Tannepada, 112751.

Blainvillea acmella (Linn. f.) Philipson
On hill tops and hill slopes, frequent. Fl. Frt. September. Sawarna, 111391; Deodongra-Tannepada, 112724.

Blumea mollis (D. Don) Merr.
In open areas, frequent. Kumbhala, 111561.

Caesulia axillaris Roxb.
In open moist areas, frequent. Fl. September. Deodongra-Tannepada, 112746.

Centratherum phyllolaenum Benth. ex Hk. f.
On hill tops and slopes, frequent. Fl. September. Jhari, 111515; Kumbhala, 112606.

Conyza stricta Willd.
In open areas, few. Fl. September. Kumbhala-Peint, 112614.

Eclipta prostrata (Linn. f.) Linn.
In moist areas, common. Fl. July-September. Nanasi-Ambe, *Rolla* 109368; Sawarna, valley down Gujarat border, 111225; Tannepada-Kharshet, 112782.

Elephantopus scaber Linn.
In open fields and slopes, frequent. Fl. September. Harsul, 112640; Tannepada-Kharshet, 112765.

Emilia sonchifolia DC.
In open areas, frequent. Fl. September. Pient, 111333; Harsul, 112624.

Sclerocarpus africanus Jacq.
In open areas, few. Fl. September. Kumbhala, 112604; Sawarna, on way to Gujarat border, 111441.

Senecio grahami Hk. f.
On hill tops and slopes, very common. Fl. September. Sawarna-Kumbhala, 111545.

Tricholepis glaberrima DC.
In cultivated fields and forest edges, rare. Fl. September. Boripada, 112712.

Tridex procumbens Linn.
On hill slopes, common. Fl. September. Sawarna, valley down Gujarat border, 111209.

Vernonia cinerea (Linn.) Less.
In waste lands, few. Fl. September. Tannepada, 112747.

Wedelia urticaefolia DC.
On hill slopes and forest edges, very common. Fl. September. Sawarna, 111395; Deodongra, 112688.

Xanthium stumarium Linn.
In open areas, common. Fl. Frt. September. Deodongra-Tannepada, 112721.

LOBELIACEAE

Lobelia alsinoides Lamk.
In open areas, frequent. Fl. September. Jhari, 111518; Peint, 111321.

PLUMBAGINACEAE

Plumbago zeylanica Linn.
On hill slopes, few. Fl. September. Peint, 111346.

PRIMULACEAE

Anagallis arvensis Linn.

On hill tops, frequent. Fl. September. Sawarna-Kumbhala, 111547.

A. pumila Sw.

On hill tops, frequent. Fl. September. Kumbhala, 111587.

MYRSINACEAE

Embelia tsjariam-cottam DC.

On hill slopes, common. Fl. Frt. July-September. Harsul, 109303 & 112634; Nanasi-Ambe, *Rolla* 109371; Peint-Tondwal, 111144; Kumbhala, 111261.

EBENACEAE

Madhuca longifolia (Koen.) Mac. var. **latifolia** (Roxb.) Chev.

On hill slopes and valleys, common. Frt. July. Tondwal, 111152.

SAPOTACEAE

Diospyros melanoxylon Roxb.

On hill slopes and valleys, few. Frt. July. Bahre-Nanasi, *Rolla* 109331.

OLEACEAE

Jasminum malabaricum Wt.

On hill slopes, frequent. Frt. July. Tondwal, 111160.

APOCYNACEAE

Carissa congesta Wt.

On hills slopes and waste lands, common. Frt. September. Rajbhari, 111306.

Holarrhena antidysenterica A. DC.

On hill tops and slopes, common. Fl. July-September. Tondwal, 111164; Jhari, 111499.

Wrightia tinctoria R. Br.

On hill slopes, frequent. Fl. Frt. July-September. Harsul, 109308; Jhari, 111511.

ASCLEPIADACEAE

Calotropis gigantea (Linn.) R. Br.

On hill slopes, frequent. Fl. September. Sawarna, valley down Gujarat border, 111214.

Cryptolepis buchanani R. & S.

On hill slopes and open areas, common. Fl. July-September. Harsul, 109321; Peint, 111108; Jhari, 111502.

Dregea volubilis (Linn. f.) Benth. ex Hk. f.

On hill slopes and valleys, frequent. Fl. Frt. September. Sawarna-Kumbhala, 111554; Sawarna, 111235.

Vern. Bokudivel.

Hemidesmus indicus Sch.

On hill slopes, frequent. Fl. September. Peint, 111375; Kumbhala, 111571; Rajbhari, 111285.

Oianthus deceanensis Talb.

On hill slopes, rare. Fl. September-October. Deodongra-Deoli, 112668.

Tylophora dalzellii Hk. f.

On hill slopes, few. Fl. September. Kiratmal, 111248.

LOGANIACEAE

Cynoctonum mitreola (Linn.) Britton.

In open areas, few. Fl. September. Sawarna, 111432; Deodongra, 112678.

GENTIANACEAE

Canscora concanensis C. B. Cl.

In open fields, rare. Fl. September. Peint, 111320; Kumbhala, 111583.

This is one of the very interesting and rare plant.

Exacum petiolare Griseb.

In open areas and near the nalas, frequent. Fl. September. Peint, 111335; Deodongra, 112699.

Swertia minor Knobl.

In open fields, few. Fl. September. Rajbhari, 111279.

BORAGINACEAE

Adelocaryum caelestinum (Lindl.) Brand.

On hill tops and open areas, frequent. Fl. September. Peint, 111352.

Cordia dichotoma Forst. f.

Near the villages, common. Kumbhala, 111586.

Heliotropium indicum Linn.

In rocky areas of the river, frequent. Fl. September. Peint, 111371.

H. ovalifolium Forsk.

In rocky areas of the river, frequent. Fl. September. Sawarna, 111245.

Trichodesma amplexicaule Roth

In open areas, common. Fl. July-September. Nanasi-Ambe, *Rolla* 109370; Tannepada-Kharshet, 112779; Rajbhari, 111308.

CONVOLVULACEAE

Argyreia sericea Dalz.

On hill slopes, few. Fl. September. Peint, 111371.

Cascuta reflexa Roxb.

Parasite, frequent. Fl. July. Tondwal, 111156.

Evolvulus alsinoides Linn.

In open area, common. Fl. July-September. Harsul, 109319; Kumbhala, 111560; Sawarna-Kumbhala, 111546; Rajbhari, 111298.

Ipomoea clarkei Hk. f.

On hill slopes, rare. Fl. September. Jhari, 111530.

I. digitata Linn.

On hill slopes, few. Fl. September. Deodongra, 112674.

I. erinocarpa R. Br.

On open areas, common. Fl. September. Kumbhala, 111585; Deodongra, 112669; Tannepada, 112750.

I. muricata (Linn.) Jacq.

On hill slopes, and valleys, few. Fl. Frt. September. Jhari, 111496.

Vern. Ghagula.

I. pes-tigridis Linn.

On hill slopes, few. Fl. September. Sawarna, on way to Gujarat border, 111468.

SOLANACEAE

Nicandra physaloides (Linn.) Gaertn.

In open areas, frequent. Fl. Frt. September. Peint, 111379; Deodongra, 112666.

Physalis minima Linn.

On hill slopes and cultivated fields, frequent. Fl. September. Sawarna, valley down Gujarat border, 111212.

Solanum indicum Linn.

In waste lands, frequent. Fl. Frt. July-September. Pratapgadh forest, Surgana, *Rolla* 109394; Kumbhala, 111574; Tannepada-Kharshet, 112767; Peint, 111106.

SCROPHULARIACEAE

Buchnera hispida Buch.-Ham.

In open grasslands, frequent. Fl. September. Kumbhala, 111557; Deodongra-Tannepada, 112726.

Limnophila indica (Linn.) Druce.

Aquatic, rare. Fl. September. Sawarna, 111551.

Kubderbua cukuata (Colsm.) Pennell.

In open areas, frequent. Fl. September. Harsul, 112628.

Lindernia crustacea (Linn.) Mueller.

In open areas, common. Fl. September. Harsul, 112625; Deodongra, 112662.

L. nummularifolia (Don.) Wettst.

In open areas, frequent. Fl. September. Peint, 111315.

Rhamphicarpa longiflora (Arn.) Benth.

In open grasslands, common. Fl. September. Peint, 111353.

Sopubia delphinifolia (Linn.) Don var. **parviflora** Benth.

In open grasslands, common. Fl. September. Peint, 111360; Kumbhala, 111558; Deodongra-Tannepada, 112731; Harsul-Tannepada, 112648.

Striga angustifolia (Don.) Sald.

In open grasslands, common. Fl. September. Deodongra-Tannepada, 112729.

S. asiatica (Linn.) Kuntze.

On hill tops, frequent. Fl. September. Pient, 111377; Kumbhala, 111570.

S. densiflora Benth.

On hill tops, frequent. Fl. September. Kumbhala, 111610.

Torenia cordifolia Roxb.

In open areas, frequent. Fl. September. Jhari, 111483.

BIGNONIACEAE

Dolichandrone falcata Seen.

On hill slopes, frequent. Frt. July. Harsul, 109307.

Oroxylum indicum (Linn.) Vent.

On hill slopes, rare. Fl. September. Kotambighat, Peint, 111370.

Stereospermum chelonoides DC.

On hill slopes, frequent. Tondwal, 111176.

PEDALIACEAE

Martynia annua Linn.

In waste lands, frequent. Fl. September, Harsul, 112641.

Sesamum mulayanum Nair

In waste lands, frequent. Fl. September, Sawarna, on way to Gujarat border, 111476.

Vern. Rantil.

THUNBERGIACEAE

Thunbergia laevis Nees

On hill slopes, frequent. Fl. September, Peint, 111350; Kumbhala, 111593; Harsul, 112635.

ACANTHACEAE

Asystasia dalzelliana Sant.

In shady areas of the hill slopes, frequent. Fl. September. Sawarna, 111383.

Barleria cristata Linn.

On hill slopes, frequent. Fl. September. Sawarna, 111419.

B. prattensis Sant.

On hill slopes, frequent. Fl. September. Deodongra, 112670; Sawarna, on way to Gujarat border, 111464.

Carvia callosa (Wall.) Brem.

On hill slopes, very common. Fl. July-September. Deodongra, 112682; Sawarna, on way to Gujarat border, 111475; Peint, 111113.

Hemigraphis latebrosa Nees

In open areas, frequent. Fl. September. Borochipada, 111269.

Hygrophila auriculata (Sch.) Heine.

In marshy areas, common. Fl. September. Sawarna, 111437.

Justicia betonica Linn.

On hill slopes, frequent. Fl. September. Peint, 111351; Kumbhala-Peint, 112616.

Lepidagathis cuspidata Nees

On hill slopes, frequent. Fl. September, Borichibari, 111267.

Neuracanthus sphaerostachyus Dalz.

On hill tops, few. Fl. September, Peint, 111365; Harsul-Tannepada, 112643.

Rostellularia procumbens (Linn.) Nees

In open fields, common. Fl. September. Kotambighat, Peint, 111376; Deodongra, 112696.

Rungia elegans Dalz. & Gibs.

On hill slopes, frequent. Fl. September-October. Tannepada-Kharshet, 112749.

R. pectinata (Linn.) Nees

On hill slopes, frequent. Fl. September. Boripada, 112716.

VERBENACEAE

Clerodendrum serratum (Linn.) Moon.

On hill slopes, frequent. Fl. July-September. Nanasi-Ambe, *Rolla* 109354; Sawarna, 111233; Jhari, 111534.

Gmelina arborea Roxb.

On hill slopes, frequent. Fl. July, Peint, 111111.

Tectona grandis Linn.

On hill slopes and hill tops, common. Fl. July. Tondwal, 111167.

Vitex negundo Linn.

On hill slopes, common. Fl. July. Bahre, *Rolla* 109325; Tondwal, 111153.

LAMIACEAE

Acrocephalus indicus (Burm.) O. Ktze.

On hill slopes, few. Fl. September. Kumbhala, 112601; Sawarna, on way to Gujarat border, 111454.

Anisochilus carnosus Wall.

On hill tops, few. Fl. September. Sawarna, on way to Gujarat border; 111445.

Anisomeles heyneana Benth.

On hill slopes, few. Fl. September-October. Deodongra, 112690 & 112681.

Leucas aspera Spreng.

In cultivated fields, frequent. Fl. September. Sawarna, 111390.

L. lavandulaefolia Rees.

In open fields, common. Fl. July-September. Nanasi-Ambe, *Rolla* 109357; Sawarna, valley down Gujarat border, 111222.

L. zeylanica R. Br.

In open fields, frequent. Fl. September. Tannepada, 112730.

Ocimum americanum Linn.

In cultivated fields, frequent. Fl. September. Sawarna, 111389; Borichibari, 111273.

Vern. Ajola.

O. basilicum Linn.

In cultivated fields, frequent. Fl. September. Tannepada-Kharshet, 112786.

Plectranthus mollis (Ait.) Spreng.

On hill slopes, common. Fl. September. Sawarna, on way to Gujarat border, 111444.

AMARANTHACEAE

Achyranthes aspera Linn.

On hill tops, common. Fl. September. Sawarna, on way to Gujarat border, 111453; Sawarna-Kumbhala, 111542; Deodongra-Tannepada, 112725.

Alternanthera sessilis (Linn.) R. Br.

On hill tops, common. Fl. July-September. Harsul, 109380; Pratapgadh forest, Surgana, *Rolla* 109380; Tondwal, 111194; Deodongra-Tannepada, 112737.

Amaranthus gangeticus Linn. var. **tristis** Prain

In open fields, frequent. Fl. September. Deodongra, 112661; Deodongra-Tannepada, 112745.

A. hybridus Linn. subsp. **cruentus** Thell. var. **paniculatus** Thell.

In open fields, frequent. Fl. July. Tondwal, 111171.

A. spinosus Linn.

In open fields, common. Fl. September. Deodongra-Tannepada, 112743.

Celosia argentea Linn.

In open fields, common. Fl. September. Jhari, 111489; Deodongra, 112691.

POLYGONACEAE

Polygonum glabrum Willd.

In marshy areas, frequent. Fl. September. Jhari, 111503.

P. plebejum R. Br.

In open wet areas, few. Fl. September-October. Tannepada-Kharshet, 112787.

LORANTHACEAE

Dendrophthoe falcata (Linn. f.) Etting.

Parasite, frequent. Fl. September. Sawarna-Kumbhala, 111549.

Viscum articulatum Burm.

Parasite, frequent. Fl. July-September. Bahre-Nanasi, *Rolla* 109345; Nanasi-Ambe, *Rolla* 109361; Sawarna-Kumbhala, 111548; Tondwal, 111183.

EUPHORBIACEAE

Acalypha malabarica Muell.-Arg.

In open areas, few. Fl. September. Peint, 111378.

Bridelia retusa Spr.

On hill slopes, frequent. Fl. July. Sawarna, 111202.

B. squamosa Gehrm.

On hill slopes, frequent. Fl. July. Pratapgadh forest, Surgana, *Rolla* 109393; Nanasi-Ambe, *Rolla* 109358.

Euphorbia hirta Linn.

In open fields, common. Fl. September. Peint, 111121.

E. parviflora Linn.

In open fields, common. Fl. July-September. Pratapgadh forest, Surgana, *Rolla* 109374; Deodongra-Tannepada, 112738.

Jatropha curcas Linn.

Near the villages, few. Fl. September. Borichibari, 111275.

Macaranga peltata Muell.-Arg.

On hill slopes, rare. Rajbhari, 111286.

Vern. Chandiva.

Mallotus philippensis Muell.-Arg.

On hill slopes, frequent. Fl. July-September. Peint, 111110; Tondwal, 111163; Borichibari, 111270.

Manihot glaziovii Muell.-Arg.

Planted near the village. Fl. July. Nanasi-Ambe, *Rolla* 109367.

Phyllanthus asperulatus Hutch.

In open fields, common. Fl. July. Sawarna, valley down Gujarat border, 111207.

P. emblica Linn.

On hill slopes, frequent. Frt. September. Sawarna, 111237.

P. simplex Retz.

In open fields, frequent. Fl. Frt. September. Jhari, 111517.

P. urinaria Linn.

In open fields, few. Fl. Frt. September. Deodongra, 112689; Sawarna, valley down Gujarat border, 111210.

Securinega virosa (Roxb. ex Willd.) Pax & Hoffm.

On hill tops and slopes, common. Fl. Frt. July-September. Bahre-Nanasi, *Rolla* 109342; Tondwal, 111149; Sawarna, 111236; Rajbhari, 111299; Boripada, 112703.

ULMACEAE

Trema orientalis (Linn.) Blume

On hill slopes, frequent. Fl. July-September. Peint, 111373; Harsul-Tannepada, 112651; Sawarna, 111242; Tondwal, 111163.

URTICACEAE

Boehmeria scabrella (Roxb.) Gaud.

In open areas, frequent. Fl. September. Sawarna, 111425.

Fleurya interrupta (Linn.) Gaud.

In shady areas, frequent. Fl. September. Sawarna, 111231; Jhari, 111508.

Pouzolzia zeylanica (Linn.) Benn.

On hill slopes, Common. Fl. July-September. Tondwal, 111192; Sawarna, 111413; Deodongra, 112697.

MORACEAE

Artocarpus heterophyllus Lamk.

Near the villages, Kumbhala, 111591.

Ficus arnottiana Miq.

On hill slopes and valleys, frequent. Frt. July. Peint, 111127; Tondwal, 111190.

F. asperrima Roxb.

On hill slopes and valleys. Frt. September. Rajbhari, 111288; Sawarna, 111238.

Vern. Khurat.

F. benghalensis Linn.

On the roadside, frequent. Frt. July. Tondwal, 111168.

F. glomerata Roxb.

On hill slopes, common. Frt. July. Tondwal, 111154.

F. microcarpa Linn. f.

On hill slopes and valleys, common. Frt. July. Nanasi-Ambe, *Rolla* 109366.

F. virens Ait. var. **virens**

On hill slopes, frequent. Frt. July. Tondwal, 111182; Borichibari, 111266.

F. tsiela Roxb.

On hill slopes, frequent. Frt. July. Tondwal, 111159.

CERATOPHYLLACEAE

Ceratophyllum demersum Linn.

Aquatic, rare. Deodongra, 112680.

ORCHIDACEAE

Aerides crispum Lindl.

Epiphytic, frequent. Fl. July. Peint-Tondwal, 111138.

Eria dalzellii Lindl.

Epiphytic, few. Fl. September. Rajbhari, 111294.

Habenaria commelinifolia Wall. ex Lindl.

In shady areas, rare. Fl. September. Harsul-Tannepada, 112642.

H. digitata Lindl.

In shady areas, rare. Fl. July. Surgana, *Rolla* 109383.

H. grandifloriformis Blatt. & Mac.

In open areas and hill tops, common. Fl. July. Bahre, *Rolla* 109323; Surgana-Waghai, *Rolla* 109389.

H. plantaginea Lindl.

On hill tops, rare. Fl. September. Sawarna, 112788.

Platanthera susanae (Linn.) Lindl.

In shady areas, rare. Fl. September. Kumbhala. 112620.

Rhyncostylis retusa Bl.

Epiphytic, rare. Fl. July. Bahre-Nanasi, *Rolla* 109343.

ZINGIBERACEAE

Costus speciosus (Koen.) Smith.

On hill slopes, frequent. Fl. September. Jhari, 111504.

Vern. Pivai.

Curcuma pseudomontana Grah.

In shady areas, common. Fl. July. Surgana-Waghai, *Rolla* 109386; Bahre, *Rolla* 109332; Peint, 111118; Sawarna, valley down Gujarat border, 111211.

HYPOXIDACEAE

Curculigo orchioides Gaertn.

In shady areas, common. Fl. July. Harsul, 109314; Peint, 111112.

Hypoxis aurea Lour.

In shady areas, frequent. Fl. July. Surgana, *Rolla* 109385A.

TACCACEAE

Tacca pinnatifida Forst.

On hill slopes, frequent. Fl. Frt. July-September. Surgana-Waghai; *Rolla* 109385; Jhari, 111513.

DIOSCOREACEAE

Dioscorea bulbifera Linn.

On hill slopes, and forest edges, common. Fl. July-September. Bahre-Nanasi, *Rolla* 109349, Deodongra, 112672.

D. oppositifolia Linn.

On hill slopes, common. Fl. July-September. Harsul, 109318; Rajbhari, 111300; Tondwal, 111165.

D. pentaphylla Linn.

On hill slopes, frequent. Fl. September. Peint, 111368; Boripada, 112704.

D. wallichii Hk. f.

Climber in white and brown flowers, common. Peint, 111369.

Dioscorea sp.

On hill slopes, rare. Fl. September. Jhari, 111510.

LILIACEAE

Asparagus racemosus Willd.

On hill slopes, frequent. Fl. September. Nanasi-Ambe, *Rolla* 109353; Sawarna, on way to Gujarat border, 111474; Tannepada-Kharshet, 112771; Tondwal, 111166.

Chlorophytum tuberosum Baker.

On hill slopes, frequent. Frt. July. Tondwal, 111198.

Gloriosa superba Linn.

On hill slopes, frequent. Fl. September. Jhari, 111491; Nanasi-Ambe, *Rolla* 109355; Tannepada-Kharshet, 112772.

Iphigenia indica A. Gray.

In open fields, common. Fl. Frt. July. Harsul, 109329 & 109313; Tondwal, 111199; Rajbhari, 111277.

Scilla indica Baker.

In open fields, common. Fl. July. Tondwal, 111196.

Urginea indica Baker.

In open fields, rare. Frt. July. Harsul, 109322.

COMMELINACEAE

Commelina benghalensis Linn.

In open areas, common. Fl. September. Sawarna, 111384.

C. diffusa Burm. f.

In open areas, common. Fl. September. Jhari, 111535; Tannepada-Kharset, 112762; Boripada, 112706; Kumbhala, 111572.

C. hasskarlii C. B. Cl.

Near the nalas, frequent. Fl. September. Peint, 111323 & 111345; Jhari, 111527.

C. kurzii C. B. Cl.

On hill slopes, few. Fl. September. Jhari, 111541; Kumbhala, 111573.

Commelina paleata Hassk.
On hill slopes, few. Fl. September. Peint, 111338; Sawarna, valley down Gujarat border, 111229.
C. suffruticosa Bl.
On hill slopes and shady areas, frequent. Fl. September. Kumbhala, 111597 & 111265; Sawarna, valley down Gujarat border, 111215.
Cyanotis cristata (Linn.) Don.
In open fields, frequent. Fl. September. Sawarna, 111410; Peint, 111322.
C. fasiculata (Heyne ex Roth) Sch. f.
In open areas, common. Fl. September. Deodongra, 112660; Jhari, 111526; Boripada, 112701.
The flowers are pure white in specimen no. 112701. Usually the flowers are bluish purple.
Murdannia nudiflora (Linn.) Brenan.
On hill slopes, frequent. Fl. September. Peint, 111347; Harsul, 112623; Jhari, 111485; Tannepada-Kharshet, 112759.
M. semiteres (Dalz.) Sant.
In open areas, common. Fl. September. Peint, 111344.
M. spirata (Linn.) Brueckn.
In open fields, frequent. Fl. September. Deodongra, 112663; Kumbhala, 112608; Tannepada-Kharshet, 112763.

ARACEAE

Amorphophallus commutatus (Schott) Engler.
In open fields. Frt. October. Tannepada-Kharshet, 112773.
Ariopsis peltata Nimmo
In rocky crevices. Fl. July. Tondwal, 111178.
Arisaema murrayi Hk.
On the hill slopes. Fl. July. Sawarna, valley down Gujarat border, 111213.
Remusatia vivipara (Roxb.) Schott.
Epiphytic. Bulbils—September. Sawarna, Jhari, 111478.

ERIOCAULACEAE

Eriocaulon dianae Fyson
In marshy areas of paddy fields, common. Fl. Frt. September-October. Boripada, 112702.
E. margaretae Fyson
In marshy areas near nala, few. Fl. Frt. September. Kumbhala, 111567.

CYPERACEAE

Cyperus aristatus Rottb.
In rocky crevices. Fl. Frt. September-October. Jhari, 111533; Deodongra-Tannepada, 112735.
C. brevifolius (Rottb.) Hassk.
In open grasslands. Fl. Frt. September. Kumbhala, 112603.
C. cyperoides (L.) O. Ktze.
In open grasslands. Fl. Frt. September. Kumbhala, 112603.
C. cyperoides (L.) O. Ktze.
In open grasslands. Fl. Frt. September. Sawarna, Kumbhala, 111544.
C. flavidus Retz.
In paddy fields. Fl. Frt. September. Jhari, 111495
C. globosus Allion
In open grasslands. Fl. Frt. September. Kotambighat, Peint, 111354.
C. iria Linn.
In open grasslands. Fl. Frt. September. Kotambighat, Peint, 111359.
C. pumilus Linn.
In Nachni cultivation common. Fl. Frt. September. Jhari, 111537.
C. rotundus Linn.
In open grasslands, few. Fl. Frt. September-October. Deodongra-Tannepada, 112736.
C. sanguinolentus Vahl
In open fields, common. Fl. Frt. September. Jhari, 111524.
C. triceps (Rottb.) Endl.
In wet areas, common. Fl. Frt. July. Peint, 111125.
Courtoisia cyperoides Nees
In paddy fields, common, locally. Fl. Frt. October, Boripada, 112709.
Eleocharis capitata R. Br.
In open grasslands, frequent. Fl. Frt. September. Kotambighat, Peint, 111355.
Fimbristylis dichotoma (Linn.) Vahl
In cultivated fields, frequent. Fl. Frt. September-October. Deodongra-Tannepada, 112741.
F. lawiana (Boeck.) Kern.
On hill slopes, common locally. Fl. Frt. July. Peint, 111109; Rajbhari, 111278.
F. miliacea (Linn.) Vahl
In paddy fields, common. Fl. Frt. September. Jhari, 111494.
F. tenera Roem. & Sch.
In rocky crevices and open fields, frequent. Fl. Frt. September. Kumbhala, 111565.
F. tetragona R. Br.
In paddy fields, common. Fl. Frt. September. Deodongra, 112679.

Rhinchospora wightiana Steud.

In open grasslands, frequent. Fl. Frt. September. Kotambighat, Peint, 111361; Harsul-Tannepada, 112655.

Scirpus squarrosus Linn.

In open fields, few. Fl. Frt. October. Deodongra-Tannepada, 112734.

Scleria hebecarpa Nees

In wet areas on the hill tops, common, locally. Fl. Frt. September. Kotambighat, Peint, 111363.

POACEAE

Apluda mutica Linn.

In open fields, common. Fl. Frt. September. Sawarna, valley down Gujarat border, 111469.

Vern. Holera.

Arthraxon lancifolius (Trin.) Hochst.

In open fields, frequent. Fl. Frt. September. Tannepada, 112755.

Arthraxon sp.

In open fields, frequent. Fl. Frt. September. Jhari, 111495 & 112693.

Arundinella pumila (Hochst.) Steud.

In rocky areas, common. Fl. Frt. September. Sawarna, 111433.

Bambusa arundinacea Willd.

On hill slopes, common. Sawarna, Jhari, 111480.

Vern. Kaset.

Brachiaria ramosa (Linn.) Stapf

On hill slopes, common. Sawarna, valley down Gujarat border, 111204.

B. reptans (Linn.) Gardn. & Hubb.

On hill slopes, few. Sawarna, on way to Gujarat border, 111447.

Capillipedium huegelii (Hack.) Stapf

In open fields, few. Fl. Frt. September. Deodongra-Tannepada, 112727.

Chloris virgata Sw.

In open fields, frequent. Fl. Frt. September. Jhari, 111509 & 112776.

Coix gigantea Koenig ex Roxb.

Near the nala, few. Fl. Frt. September. Kumbhala, 111590.

Cynodon dactylon Pers.

On the roadside, frequent. Fl. Frt. September-October. Tannepada-Kharshet, 112774.

Dactyloctenium aegyptium (Linn.) Beauv.

In open fields, common. Fl. Frt. September-October. Jhari, 111529; Tannepada-Kharshet, 112756.

Dendrocalamus strictus Nees

On hill slopes, common. Fl. Frt. July. Tondwal, 111177.

Vern. Manvel.

Desmostachya bipinnata (Linn.) Stapf

In open fields, common. Fl. Frt. July. Harsul, 109324.

Dichanthium annulatum (Forsk.) Stapf

In open fields, common. Fl. Frt. July-October. Kumbhala, 111263; Tannepada-Kharshet, 112775.

Digitaria adscendens Henr.

In open fields, and on hill slopes, common. Fl. Frt. September. Kumbhala, 111581; Sawarna, 111422; Sawarna, valley down on way to Gujarat border, 111456; 112753.

Echinochloa colonum (Linn.) Link.

In wet areas, common. Fl. Frt. September. Sawarna, 111421.

Eragrostis tenuifolia Hochst. ex Steud.

In open fields, frequent. Fl. Frt. September. Kumbhala-Peint, 112618.

E. unioloides (Retz.) Nees ex Steud.

In open fields, common. Fl. Frt. September. Jhari, 111523; Kumbhala, 111595.

Eragrostis sp.

In open fields, frequent. Fl. Frt. September. Sawarna, on way to Gujarat border, 111457.

Eulalia trispicata Henr.

In open fields, common. Fl. Frt. September-October. Boripada, 112658.

Hackelochloa granularis (Linn.) O. Ktze.

In open fields, few. Fl. Frt. September-October. Tannepada-Kharshet, 112755A.

Heteropogon contortus (Linn.) P. Beauv.

In open fields, common. Fl. Frt. September. Kumbhala, 111555; Boripada, 112657.

Isachne globosa (Thunb.) O. Ktze.

In marshy areas on the hill tops, common. Fl. Frt. September. Kotambighat, Peint, 111358; Tannepada-Kharshet, 112778.

Ischaemum indicum (Houtt.) Merr.

In open fields, common. Fl. Frt. September. Kumbhala, 111556; Deodongra, 112692.

I. rugosum Salis.

In open fields, frequent. Fl. Frt. September. Tannepada-Kharshet, 112777.

Manisuris clarkei (Hack.) Bor apud Sant.

On hill slopes, common, locally. Fl. Frt. September. Sawarna, on way to Gujarat border, 111471.

Ophiurus exaltatus O. Ktze.
In cultivated fields, rare. Fl. Frt. September. Kumbhala, 112611.
Vern. Uphada.

Oplismenus burmanii (Retz.) Beauv.
Near the nala, frequent. Fl. Frt. September-October. Boripada, 112708.

O. compositus (Linn.) P. Beauv.
In open fields, frequent. Fl. Frt. September. Kumbhala, 111599.

Panicum miliaceum Linn.
In open fields, frequent. Fl. Frt. July-September. Kotambighat, Peint, 111357; Sawarna, valley down Gujarat border, 111227.

P. montanum Roxb.
On hill slopes, few. Fl. Frt. September-October. Deodongra-Tannepada, 112718.

Paspalum compactum Roth
In open fields, common. Fl. Frt. September. Kotambighat, Peint, 111356.

Paspalidium flavidum (Retz.) Camus.
In open fields, and on roadside, common. Fl. Frt. September. Sawarna, on way to Gujarat border, 111416.

Pseudanthistiria heteroclita Hk. f.
In open fields, common. Fl. Frt. September-October, Boripada, 112659.

Setaria glauca Beauv.
On hill slopes and open fields, common. Fl. Frt. July-September. Sawarna, 111423; Sawarna, valley down Gujarat border, 111203; Tannepada-Kharshet, 112754 & 112758; Kumbhala, 111582.

S. verticillata Beauv.
In open fields, common. Fl. Frt. September. Jhari, 111492.

Sorghum halepense Pers.
Near the village, few. Fl. Frt. September-October. Deodongra, 112667.

Spodiopogon rhizophorus (Steud.) Pilger.
On hill slopes, common locally. Fl. Frt. September-October. Sawarna, 111416; Deodongra, 112675.

Themeda quadrivalvis (Linn.) O. Ktze.
In open fields, common. Fl. Frt. September. Sawarna, on way to Gujarat border, 111439.

T. triandra Forsk.
On hill slopes and open fields, common. Fl. Frt. September. Sawarna, on way to Gujarat border, 111438.

Trilobachne cookei (Stapf) Schrenck.
On hill slopes, common locally. Fl. Frt. September. Sawarna, 111396.

Tripogon jacquemontii Stapf
In rocky areas, frequent. Fl. Frt. September. Kotambighat, Peint, 111362.

Vetiveria zizanioides (Linn.) Nash.
In cultivated fields, rare. Fl. Frt. September. Jhari, 111539.

PTERIDOPHYTES

Adiantum philippense Linn.
In rocky crevices, frequent. Borichibari, 111272; Sawarna, 111426.

Aleuritopteris albomarginata (Cl.) Panigrahi
On hill slopes, common. Sawarna, 111428.

A. farinosa (Forsk.) Fee.
On hill slopes, common. Tondwal, 111170.

Athyrium filix-foemina (Linn.) Roth
On hill slopes, common. Tondwal, 111169; Sawarna, 111427; Boripada, 112710.

Microsorium membranaceum (Don) Ching.
On hill slopes, frequent. Rajbhari, 111305.

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